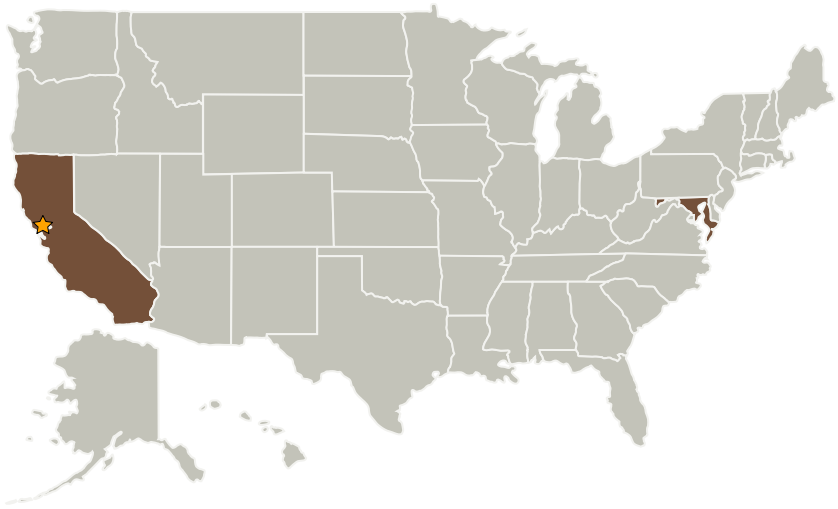
Retroreflector Array for Test Environments (RATE), Phase I

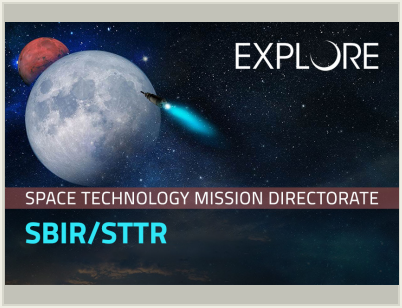
Completed Technology Project (2007 - 2007)

Project Introduction

Research Support Instruments, Inc. (RSI) proposes to develop the Retroreflector Array for Test Environments (RATE), an innovative technology that will non-intrusively measure pressure on aerodynamic surfaces in NASA ground test facilities with high sensitivity and bandwidth. The signal from RATE units will change locally due to pressure changes. Pressure sensitive paints, in comparison, have serious drawbacks: they must applied to a rigid surface, are specific to the flow species, and do not retroreflect. Because RATE will be independent of the flow species, and applied as a very thin, flexible, adhesive material, it will be able to measure the aerodynamic pressure while minimizing changes in the flow field. The Phase I RATE program will involve design, fabrication, and test of various candidate designs in order to select the most promising approach for Phase II. RSI will use its experience in microfabricated structures and pressure sensors to employ a highly innovative technology in order to non-intrusively measure aerodynamic pressure in NASA ground test facilities. The result will be a product that will address a critical NASA instrumentation need.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Research Support Instruments, Inc.	Supporting Organization	Industry	Lanham, Maryland

Primary U.S. Work Locations	
California	Maryland

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
  - TX13.2 Test and Qualification
    - TX13.2.7 Test Instruments and Sensors